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EXAMINER	
LIU, BEN H	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/541,278	SAKO ET AL.	
	Examiner	Art Unit	
	BEN H. LIU	2464	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 August 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,7-11,15-19,23-28,32-57 and 59* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,7-11,15-19,23-28,32-57 and 59* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This office action is in response to an amendment/response filed on August 6th, 2010.

2. Claims 1, 9, 17, 26, 35, 40, 45, 50, and 55 have been amended.

3. No claims have been cancelled.

4. No claims have been added.

5. Claims 1-3, 7-11, 15-19, 23-28, 32-57 and 59 are currently pending.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. The factual inquiries set forth in Graham **v.** John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claim 1-3, 7-11, 15-19, 23-28, 32-57 and 59 rejected under 35 U.S.C. 103(a) as being unpatentable over Fernandez et al. (U.S. Patent 6,922,664) in view of Kumar et al. (U.S. Patent 7,188,151) and further in view of Stanger et al. (U.S. Patent 7,376,159).

For claim 1, Fernandez et al. disclose an information transmission method, comprising:

acquiring one or more of audio information and video information of a performance at a given location (see figure 2 and column 2 lines 23-34, which recite a microphone 44 and camera 42 for acquiring audio and visual information);

detecting, concurrent with the acquiring of the one or more of audio information and video information, bio-information of at least one individual participator present at the given location (see figure 2,figure 4 and column 2 lines 23-34, which recite a biometric sensor array module 50 that detects bio-information);

packetizing the acquired one or more of audio information and video information into a stream of first data packets (see column 1 lines 62-65 and figure 2, which recite using TCP/IP packets to transmit audio and video information gathered by microphone 44 and camera 42 from client 20 to network 10);

performing statistical processing of the bio-information (see column 3 lines 48-67 and column 4 lines 1-19, which recite statistical processing of the bio-information by collecting and interpreting the mix-mode signals of the bio sensors 50 into findings, flags, warnings, or other indications provided as feedback);

packetizing the statistically processed bio-information (see column 4 lines 8-19, which recite generating digital packets comprising the collected and interpreted bio-information signals collected by biometric sensor array module 50);

transmitting the multiplexed stream (see figure 5b, column 4 lines 8-19, and column 7 lines 1-9, which recites a communication module 94 that transmits audio/video signals as well as signals from the bio-information sensors in real-time).

Fernandez et al. disclose all the subject of the claimed invention with the exception wherein the statistical processing of the bio-information is specifically performed over predetermined time intervals corresponding to respective pluralities of the first data packets of the one or more of audio information and video information, wherein the packetizing of statistically processed bio-information is specifically packetized into respective pluralities of second data packets corresponding to the respective pluralities of the first data packets.

However, Kumar et al. disclose a system and method for real-time retrieval, assessment, analysis, and transmission of physiological data such as EKG, EMG, EEG, blood pressure, body temperature, and pulse measurements (see column 5 lines 47-61 and column 6 lines 50-56). The real-time streaming of such bio-information is augmented by transmission of audio and video streams that are synchronized with the respective bio-information (see column 7 lines 4-14). Thus, it would have been obvious to the person of ordinary skill in the art at the time of the

invention to use the system and method for communicating bio-information and respectively synchronized audio and video information as taught by Kumar et al. with the method for transmitting and receiving bio-information with audio and video information as taught by Fernandez et al. The packetized bio-information must be multiplexed and transmitted such that it is temporally adjacent to the audio and video packets to ensure that the bio-information is synchronized with the audio and video information to form a real-time combined data stream. If the bio-information and audio/video information of a corresponding time period are not multiplexed together, then one of the data information would arrive later. As a result, the final stream containing video, audio, and bio-information would be delayed until the late data arrives. In this case, the delay would prevent the real-time streaming of the combined data streams as disclosed by Kumar et al. Thus, the packetized bio-information must be multiplexed together with the audio and video packets to ensure that the bio-information is synchronized with the audio and video information to form a real-time combined data stream as disclosed by Kumar et al. The motivation for using the system and method for transmitting bio-information and respectively synchronized audio and video information as taught by Kumar et al. with the method for transmitting bio-information with audio and video information as taught by Fernandez et al. is to enhance the communication experienced by users using transmission of audio/video information with respectively synchronized bio-information.

Fernandez et al. and Kumar et al. disclose all the subject of the claimed invention with the exception of specifically partitioning the acquired one or more of audio information and video information into lengths of partitioned data each of which corresponds to a predefined time interval, compressing and packetizing the lengths of partitioned data into a stream of first data

packets having empty regions resulting from the compression of lengths of the partitioned data, and multiplexing the stream of first data packets with the second data packets by inserting a respective plurality of second data packets, which corresponds to one of the predetermined time intervals, into one of the empty regions of the stream that is adjacent to a respective plurality of first data packets which corresponds to a same one of the predetermined time intervals.

However, Stanger et al. from the same or similar fields of endeavor disclose a system and method for adding auxiliary data to empty space that results from compressing a data stream for transmission (see column 2 lines 7-37). Specifically, the system and method partitions video and audio data into data packets (see column 5 lines 10-27 and figures 3a-3b), compresses the packets to provide empty regions (see column 5 lines 31-65 and figure 4), and inserts auxiliary data in the empty spaces (see column 7 lines 41-65 and figure 5). Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the system and method for adding auxiliary data to empty space that is the result of compressing a data stream as taught by Stanger et al. with the method for transmitting and receiving synchronized bio-information with audio and video information as taught by Fernandez et al. and Kumar et al.

As noted above in reference to Kumar et al., the bio-information is synchronized with respective audio and video information to form a real-time data stream. Thus, bio-information must be multiplexed with audio/video information that all correspond to the same time period. If the respective bio-information is not multiplexed with audio/video information that all correspond to the same time period, then one of the data information would arrive later. As a result, the final stream containing video, audio, and bio-information would be delayed until the late data arrives. In this case, the delay would prevent the real-time streaming of the combined

data streams as disclosed by Kumar et al. Thus, the packetized bio-information of a time period must be multiplexed in empty regions that correspond to audio and video packets of the same time period to ensure that the bio-information is synchronized with the audio and video information to form a real-time combined data stream as disclosed by Kumar et al. The system and method for adding auxiliary data to empty space in a data stream can be implemented by inserting the synchronized bio-information as taught by Fernandez et al. and Kumar et al. to the empty space that results from compressing the audio and video data using the encoders and multiplexers as taught by Stanger et al. The motivation for using the system and method for adding auxiliary data to empty space that results from compressing a data stream as taught by Stanger et al. with the method for transmitting and receiving synchronized bio-information with audio and video information as taught by Fernandez et al. and Kumar et al. is to improve the efficiency of the system by creating more payload capacity in the existing transmission channels.

For claim 2, Fernandez et al. discloses an information transmission method, wherein the at least one individual includes a speaker, a player, an actor, an actress, or a conductor who serves as a source of the audio information, and/or a performer or a photographed person who is included within the video information (see column 7 lines 1-9, which recite real-time conference that transmits information of the speaker including bio-information gathered from multi-sensor array 50).

For claim 3, Fernandez et al. discloses an information transmission method, wherein the at least one individual includes a listener who is present at the given location place when the audio information is acquired and/or a viewer present at the given location when the video

information is acquired (see column 7 lines 1-9, which recite real-time conference that transmits information of the listener including bio-information gathered from multi-sensor array 50).

For claim 7, Fernandez et al. discloses an information transmission method, wherein the bio-information is selected from the group consisting of body motion, myoelectricity, body surface temperature, skin sweating, skin pressure, pulse, breath, micro-vibration, cardioelectricity, heartbeat, and blood pressure (see column 4 lines 20-29, which recite detecting temperature, pressure, physiological vital information such as pulse and blood pressure using the multi-sensor module 50).

For claim 8, Fernandez et al. discloses an information transmission method, wherein the detected bio-information is extracted from the one or more of audio information and video information (see column 6 lines 22-25, which recite extracting facial imaging biometric information from video information gathered at client 20).

For claim 9, Fernandez et al. disclose an information transmission apparatus, comprising:

information acquiring means for acquiring one or more of audio information and video information of a performance at a given location (see figure 2 and column 2 lines 23-34, which recite a microphone 44 and camera 42 for acquiring audio and visual information);

bio-information detecting means for detecting, concurrent with the acquiring of the one or more of audio information and video information, bio-information of at least one individual present at the given location (see figure 2,figure 4 and column 2 lines 23-34, which recite a biometric sensor array module 50 that detects bio-information);

first packetizing means for packetizing the acquired one or more of audio information and video information into a stream of first data packets (see column 1 lines 62-65 and figure 2, which recite using TCP/IP packets to transmit audio and video information gathered by microphone 44 and camera 42 from client 20 to network 10);

bio-information analysis means for performing statistical processing of the bio-information (see column 3 lines 48-67 and column 4 lines 1-19, which recite statistical processing of the bio-information by collecting and interpreting the mix-mode signals of the bio sensors 50 into findings, flags, warnings, or other indications provided as feedback);

second packetizing means for packetizing the statistically processed bio-information (see column 4 lines 8-19, which recite generating digital packets comprising the collected and interpreted bio-information signals collected by biometric sensor array module 50);

transmission means for transmitting the multiplexed stream (see figure 5b, column 4 lines 8-19, and column 7 lines 1-9, which recites a communication module 94 that transmits audio/video signals as well as signals from the bio-information sensors in real-time).

Fernandez et al. disclose all the subject of the claimed invention with the exception wherein the statistical processing of the bio-information is specifically performed over predetermined time intervals corresponding to respective pluralities of the first data packets of the one or more of audio information and video information, wherein the packetizing of statistically processed bio-information is specifically packetized into respective pluralities of second data packets corresponding to the respective pluralities of the first data packets.

However, Kumar et al. disclose a system and method for real-time retrieval, assessment, analysis, and transmission of physiological data such as EKG, EMG, EEG, blood pressure, body

temperature, and pulse measurements (see column 5 lines 47-61 and column 6 lines 50-56). The real-time streaming of such bio-information is augmented by transmission of audio and video streams that are synchronized with the respective bio-information (see column 7 lines 4-14). Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the system and method for communicating bio-information and respectively synchronized audio and video information as taught by Kumar et al. with the method for transmitting and receiving bio-information with audio and video information as taught by Fernandez et al. The packetized bio-information must be multiplexed and transmitted such that it is temporally adjacent to the audio and video packets to ensure that the bio-information is synchronized with the audio and video information to form a real-time combined data stream. If the bio-information and audio/video information of a corresponding time period are not multiplexed together, then one of the data information would arrive later. As a result, the final stream containing video, audio, and bio-information would be delayed until the late data arrives. In this case, the delay would prevent the real-time streaming of the combined data streams as disclosed by Kumar et al. Thus, the packetized bio-information must be multiplexed together with the audio and video packets to ensure that the bio-information is synchronized with the audio and video information to form a real-time combined data stream as disclosed by Kumar et al. The motivation for using the system and method for transmitting bio-information and respectively synchronized audio and video information as taught by Kumar et al. with the method for transmitting bio-information with audio and video information as taught by Fernandez et al. is to enhance the communication experienced by users using transmission of audio/video information with respectively synchronized bio-information.

Fernandez et al. and Kumar et al. disclose all the subject of the claimed invention with the exception of specifically partitioning the acquired one or more of audio information and video information into lengths of partitioned data each of which corresponds to a predefined time interval, compressing and packetizing the lengths of partitioned data into a stream of first data packets having empty regions resulting from the compression of lengths of the partitioned data, and multiplexing the stream of first data packets with the second data packets by inserting a respective plurality of second data packets, which corresponds to one of the predetermined time intervals, into one of the empty regions of the stream that is adjacent to a respective plurality of first data packets which corresponds to a same one of the predetermined time intervals.

However, Stanger et al. from the same or similar fields of endeavor disclose a system and method for adding auxiliary data to empty space that results from compressing a data stream for transmission (see column 2 lines 7-37). Specifically, the system and method partitions video and audio data into data packets (see column 5 lines 10-27 and figures 3a-3b), compresses the packets to provide empty regions (see column 5 lines 31-65 and figure 4), and inserts auxiliary data in the empty spaces (see column 7 lines 41-65 and figure 5). Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the system and method for adding auxiliary data to empty space that is the result of compressing a data stream as taught by Stanger et al. with the method for transmitting and receiving synchronized bio-information with audio and video information as taught by Fernandez et al. and Kumar et al.

As noted above in reference to Kumar et al., the bio-information is synchronized with respective audio and video information to form a real-time data stream. Thus, bio-information must be multiplexed with audio/video information that all correspond to the same time period. If

the respective bio-information is not multiplexed with audio/video information that all correspond to the same time period, then one of the data information would arrive later. As a result, the final stream containing video, audio, and bio-information would be delayed until the late data arrives. In this case, the delay would prevent the real-time streaming of the combined data streams as disclosed by Kumar et al. Thus, the packetized bio-information of a time period must be multiplexed in empty regions that correspond to audio and video packets of the same time period to ensure that the bio-information is synchronized with the audio and video information to form a real-time combined data stream as disclosed by Kumar et al. The system and method for adding auxiliary data to empty space in a data stream can be implemented by inserting the synchronized bio-information as taught by Fernandez et al. and Kumar et al. to the empty space that results from compressing the audio and video data using the encoders and multiplexers as taught by Stanger et al. The motivation for using the system and method for adding auxiliary data to empty space that results from compressing a data stream as taught by Stanger et al. with the method for transmitting and receiving synchronized bio-information with audio and video information as taught by Fernandez et al. and Kumar et al. is to improve the efficiency of the system by creating more payload capacity in the existing transmission channels.

For claim 10, Fernandez et al. discloses an information transmission information acquiring means wherein the at least one individual includes a speaker, a player, an actor, or a conductor who serves as a source of the audio information, and/or a performer or a photographed person who is included within the video information (see column 7 lines 1-9, which recite real-time conference that transmits information of the speaker including bio-information gathered from multi-sensor array 50).

For claim 11, Fernandez et al. discloses an information transmission information acquiring means wherein the at least one individual includes a listener who is present at the given location when the audio information is acquired and/or a viewer present at the given location place when the video information is acquired (see column 7 lines 1-9, which recite real-time conference that transmits information of the listener including bio-information gathered from multi-sensor array 50).

For claim 15, Fernandez et al. discloses an information transmission information acquiring means wherein the bio-information is selected from the group consisting of body motion, myoelectricity, body surface temperature, skin sweating, skin resistance, pulse, breath, micro-vibration, cardioelectricity, heartbeat, and blood pressure (see column 4 lines 20-29, which recite detecting temperature, pressure, physiological vital information such as pulse and blood pressure using the multi-sensor module 50).

For claim 16, Fernandez et al. discloses an information transmission information acquiring means wherein the bio-information detecting means extracts the detected bio-information from the one or more of audio information and video information (see column 6 lines 22-25, which recite extracting facial imaging biometric information from video information gathered at client 20).

For claim 17, Fernandez et al. disclose an information recording method, comprising:

acquiring one or more of audio information and video information of a performance at a given location (see figure 2 and column 2 lines 23-34, which recite a microphone 44 and camera 42 for acquiring audio and visual information);

detecting, concurrent with the acquiring of the one or more of audio information and video information, bio-information of at least one individual participator present at the given location (see figure 2,figure 4 and column 2 lines 23-34, which recite a biometric sensor array module 50 that detects bio-information);

performing statistical processing of the bio-information (see column 3 lines 48-67 and column 4 lines 1-19, which recite statistical processing of the bio-information by collecting and interpreting the mix-mode signals of the bio sensors 50 into findings, flags, warnings, or other indications provided as feedback);

packetizing the statistically processed bio-information into respective pluralities of second data packets corresponding to the respective pluralities of the first data packets (see column 4 lines 8-19, which recite generating digital packets comprising the collected and interpreted bio-information signals collected by biometric sensor array module 50);

recording the multiplexed stream onto a predetermined recording medium (see column 2 lines 4-14, which recite storing the recorded data for transmission).

Fernandez et al. disclose all the subject of the claimed invention with the exception wherein the statistical processing of the bio-information is specifically performed over predetermined time intervals corresponding to respective pluralities of the first data packets of the one or more of audio information and video information, wherein the packetizing of statistically processed bio-information is specifically packetized into respective pluralities of second data packets corresponding to the respective pluralities of the first data packets.

However, Kumar et al. disclose a system and method for real-time retrieval, assessment, analysis, and transmission of physiological data such as EKG, EMG, EEG, blood pressure, body

temperature, and pulse measurements (see column 5 lines 47-61 and column 6 lines 50-56). The real-time streaming of such bio-information is augmented by transmission of audio and video streams that are synchronized with the respective bio-information (see column 7 lines 4-14). Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the system and method for communicating bio-information and respectively synchronized audio and video information as taught by Kumar et al. with the method for transmitting and receiving bio-information with audio and video information as taught by Fernandez et al. The packetized bio-information must be multiplexed and transmitted such that it is temporally adjacent to the audio and video packets to ensure that the bio-information is synchronized with the audio and video information to form a real-time combined data stream. If the bio-information and audio/video information of a corresponding time period are not multiplexed together, then one of the data information would arrive later. As a result, the final stream containing video, audio, and bio-information would be delayed until the late data arrives. In this case, the delay would prevent the real-time streaming of the combined data streams as disclosed by Kumar et al. Thus, the packetized bio-information must be multiplexed together with the audio and video packets to ensure that the bio-information is synchronized with the audio and video information to form a real-time combined data stream as disclosed by Kumar et al. The motivation for using the system and method for transmitting bio-information and respectively synchronized audio and video information as taught by Kumar et al. with the method for transmitting bio-information with audio and video information as taught by Fernandez et al. is to enhance the communication experienced by users using transmission of audio/video information with respectively synchronized bio-information.

Fernandez et al. and Kumar et al. disclose all the subject of the claimed invention with the exception of specifically partitioning the acquired one or more of audio information and video information into lengths of partitioned data each of which corresponds to a predefined time interval, compressing and packetizing the lengths of partitioned data into a stream of first data packets having empty regions resulting from the compression of lengths of the partitioned data, and multiplexing the stream of first data packets with the second data packets by inserting a respective plurality of second data packets, which corresponds to one of the predetermined time intervals, into one of the empty regions of the stream that is adjacent to a respective plurality of first data packets which corresponds to a same one of the predetermined time intervals.

However, Stanger et al. from the same or similar fields of endeavor disclose a system and method for adding auxiliary data to empty space that results from compressing a data stream for transmission (see column 2 lines 7-37). Specifically, the system and method partitions video and audio data into data packets (see column 5 lines 10-27 and figures 3a-3b), compresses the packets to provide empty regions (see column 5 lines 31-65 and figure 4), and inserts auxiliary data in the empty spaces (see column 7 lines 41-65 and figure 5). Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the system and method for adding auxiliary data to empty space that is the result of compressing a data stream as taught by Stanger et al. with the method for transmitting and receiving synchronized bio-information with audio and video information as taught by Fernandez et al. and Kumar et al.

As noted above in reference to Kumar et al., the bio-information is synchronized with respective audio and video information to form a real-time data stream. Thus, bio-information must be multiplexed with audio/video information that all correspond to the same time period. If

the respective bio-information is not multiplexed with audio/video information that all correspond to the same time period, then one of the data information would arrive later. As a result, the final stream containing video, audio, and bio-information would be delayed until the late data arrives. In this case, the delay would prevent the real-time streaming of the combined data streams as disclosed by Kumar et al. Thus, the packetized bio-information of a time period must be multiplexed in empty regions that correspond to audio and video packets of the same time period to ensure that the bio-information is synchronized with the audio and video information to form a real-time combined data stream as disclosed by Kumar et al. The system and method for adding auxiliary data to empty space in a data stream can be implemented by inserting the synchronized bio-information as taught by Fernandez et al. and Kumar et al. to the empty space that results from compressing the audio and video data using the encoders and multiplexers as taught by Stanger et al. The motivation for using the system and method for adding auxiliary data to empty space that results from compressing a data stream as taught by Stanger et al. with the method for transmitting and receiving synchronized bio-information with audio and video information as taught by Fernandez et al. and Kumar et al. is to improve the efficiency of the system by creating more payload capacity in the existing transmission channels.

For claim 18, Fernandez et al. discloses an information recording method wherein the at least one individual includes a speaker, a player, an actor, or conductor who serves as a source of the audio information, and/or a performer or a photographed person who is included within the video information (see column 7 lines 1-9, which recite real-time conference that transmits information of the speaker including bio-information gathered from multi-sensor array 50).

For claim 19, Fernandez et al. discloses an information recording method wherein the at least one individual includes a listener who is present at the given location when the audio information is acquired and/or a viewer present at the given location when the video information is acquired (see column 7 lines 1-9, which recite real-time conference that transmits information of the listener including bio-information gathered from multi-sensor array 50).

For claim 23, Fernandez et al. discloses an information recording method wherein the bio-information is selected from the group consisting of body motion, myoelectricity, body surface temperature, skin sweating, skin resistance, pulse, breath, micro-vibration, cardioelectricity, heartbeat, and blood pressure (see column 4 lines 20-29, which recite detecting temperature, pressure, physiological vital information such as pulse and blood pressure using the multi-sensor module 50).

For claim 24, Fernandez et al. discloses an information recording method wherein the detected the recording medium is at least one of optical disc, magnetic tape, hard disc and semiconductor memory (see column 3 lines 1-17, which recite a memory implement on a semiconductor for storing sensed signals).

For claim 25, Fernandez et al. discloses an information recording method wherein the bio-information is extracted from the one or more of audio information and video information (see column 6 lines 22-25, which recite extracting facial imaging biometric information from video information gathered at client 20).

For claim 26, Fernandez et al. disclose an information recording apparatus, comprising:

information acquiring means for acquiring one or more of audio information and video information of a performance at a given location (see figure 2 and column 2 lines 23-34, which recite a microphone 44 and camera 42 for acquiring audio and visual information);

bio-information detecting means for detecting, concurrent with the acquiring of the one or more of audio information and video information, bio-information of at least one individual present at the given location (see figure 2,figure 4 and column 2 lines 23-34, which recite a biometric sensor array module 50 that detects bio-information); and

first packetizing means for packetizing the acquired one or more of audio information and video information into a stream of first data packets (see column 1 lines 62-65 and figure 2, which recite using TCP/IP packets to transmit audio and video information gathered by microphone 44 and camera 42 from client 20 to network 10);

bio-information analysis means for performing statistical processing of the bio-information (see column 3 lines 48-67 and column 4 lines 1-19, which recite statistical processing of the bio-information by collecting and interpreting the mix-mode signals of the bio sensors 50 into findings, flags, warnings, or other indications provided as feedback);

second packetizing means for packetizing the statistically processed bio-information into respective pluralities of second data packets (see column 4 lines 8-19, which recite generating digital packets comprising the collected and interpreted bio-information signals collected by biometric sensor array module 50);

recording means for recording the multiplexed stream onto a predetermined recording medium (see column 2 lines 4-14, which recite storing the recorded data for transmission).

Fernandez et al. disclose all the subject of the claimed invention with the exception wherein the statistical processing of the bio-information is specifically performed over predetermined time intervals corresponding to respective pluralities of the first data packets of the one or more of audio information and video information, wherein the packetizing of statistically processed bio-information is specifically packetized into respective pluralities of second data packets corresponding to the respective pluralities of the first data packets.

However, Kumar et al. disclose a system and method for real-time retrieval, assessment, analysis, and transmission of physiological data such as EKG, EMG, EEG, blood pressure, body temperature, and pulse measurements (see column 5 lines 47-61 and column 6 lines 50-56). The real-time streaming of such bio-information is augmented by transmission of audio and video streams that are synchronized with the respective bio-information (see column 7 lines 4-14). Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the system and method for communicating bio-information and respectively synchronized audio and video information as taught by Kumar et al. with the method for transmitting and receiving bio-information with audio and video information as taught by Fernandez et al. The packetized bio-information must be multiplexed and transmitted such that it is temporally adjacent to the audio and video packets to ensure that the bio-information is synchronized with the audio and video information to form a real-time combined data stream. If the bio-information and audio/video information of a corresponding time period are not multiplexed together, then one of the data information would arrive later. As a result, the final stream containing video, audio, and bio-information would be delayed until the late data arrives. In this case, the delay would prevent the real-time streaming of the combined data streams as

disclosed by Kumar et al. Thus, the packetized bio-information must be multiplexed together with the audio and video packets to ensure that the bio-information is synchronized with the audio and video information to form a real-time combined data stream as disclosed by Kumar et al. The motivation for using the system and method for transmitting bio-information and respectively synchronized audio and video information as taught by Kumar et al. with the method for transmitting bio-information with audio and video information as taught by Fernandez et al. is to enhance the communication experienced by users using transmission of audio/video information with respectively synchronized bio-information.

Fernandez et al. and Kumar et al. disclose all the subject of the claimed invention with the exception of specifically partitioning the acquired one or more of audio information and video information into lengths of partitioned data each of which corresponds to a predefined time interval, compressing and packetizing the lengths of partitioned data into a stream of first data packets having empty regions resulting from the compression of lengths of the partitioned data, and multiplexing the stream of first data packets with the second data packets by inserting a respective plurality of second data packets, which corresponds to one of the predetermined time intervals, into one of the empty regions of the stream that is adjacent to a respective plurality of first data packets which corresponds to a same one of the predetermined time intervals.

However, Stanger et al. from the same or similar fields of endeavor disclose a system and method for adding auxiliary data to empty space that results from compressing a data stream for transmission (see column 2 lines 7-37). Specifically, the system and method partitions video and audio data into data packets (see column 5 lines 10-27 and figures 3a-3b), compresses the packets to provide empty regions (see column 5 lines 31-65 and figure 4), and inserts auxiliary

data in the empty spaces (see column 7 lines 41-65 and figure 5). Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the system and method for adding auxiliary data to empty space that is the result of compressing a data stream as taught by Stanger et al. with the method for transmitting and receiving synchronized bio-information with audio and video information as taught by Fernandez et al. and Kumar et al.

As noted above in reference to Kumar et al., the bio-information is synchronized with respective audio and video information to form a real-time data stream. Thus, bio-information must be multiplexed with audio/video information that all correspond to the same time period. If the respective bio-information is not multiplexed with audio/video information that all correspond to the same time period, then one of the data information would arrive later. As a result, the final stream containing video, audio, and bio-information would be delayed until the late data arrives. In this case, the delay would prevent the real-time streaming of the combined data streams as disclosed by Kumar et al. Thus, the packetized bio-information of a time period must be multiplexed in empty regions that correspond to audio and video packets of the same time period to ensure that the bio-information is synchronized with the audio and video information to form a real-time combined data stream as disclosed by Kumar et al. The system and method for adding auxiliary data to empty space in a data stream can be implemented by inserting the synchronized bio-information as taught by Fernandez et al. and Kumar et al. to the empty space that results from compressing the audio and video data using the encoders and multiplexers as taught by Stanger et al. The motivation for using the system and method for adding auxiliary data to empty space that results from compressing a data stream as taught by Stanger et al. with the method for transmitting and receiving synchronized bio-information with

audio and video information as taught by Fernandez et al. and Kumar et al. is to improve the efficiency of the system by creating more payload capacity in the existing transmission channels.

For claim 27, Fernandez et al. discloses an information recording method wherein the at least one individual includes a speaker, a player, an actor, or a conductor who serves as a source of the audio information, and/or a performer or a photographed person who is included within the video information (see column 7 lines 1-9, which recite real-time conference that transmits information of the speaker including bio-information gathered from multi-sensor array 50).

For claim 28, Fernandez et al. discloses an information recording method wherein the at least one individual includes a listener who is present at the given location when the audio information is acquired and/or a viewer present at the given location when the video information is acquired (see column 7 lines 1-9, which recite real-time conference that transmits information of the listener including bio-information gathered from multi-sensor array 50).

For claim 32, Fernandez et al. discloses an information recording method wherein the bio-information is at least one selected from the group consisting of body motion, myoelectricity, body surface temperature, skin sweating, skin resistance, pulse, breath, micro-vibration, cardioelectricity, heartbeat, and blood pressure (see column 4 lines 20-29, which recite detecting temperature, pressure, physiological vital information such as pulse and blood pressure using the multi-sensor module 50).

For claim 33, Fernandez et al. discloses an information recording method wherein the recording medium is selected from the group consisting of optical disc, magnetic tape, hard disc, and semiconductor memory (see column 3 lines 1-17, which recite a memory implement on a semiconductor for storing sensed signals).

For claim 34, Fernandez et al. discloses an information recording method wherein the bio-information detecting means extracts the detected bio-information from the one or more of audio information and video information (see column 6 lines 22-25, which recite extracting facial imaging biometric information from video information gathered at client 20).

For claim 35, Fernandez et al. disclose an information reproducing method, comprising:

decomposing a multiplexed data stream into respective pluralities of first data packets of one or more of audio information and video information and into corresponding respective pluralities of second data packets of statistically processed bio-information (see figure 2 and column 2 lines 23-34, which recites client 20 including network interface 24 used to receive data streams including audio, video, and bio-information that are decomposed and respectively distributed to audio device 46, display 32, and mechanical device 48),

the multiplexed data stream having each respective plurality of second data packets of the statistically processed bio-information (see column 4 lines 8-19 and column 7 lines 1-9, which recite generating digital packets comprising the collected and interpreted bio-information signals collected by biometric sensor array module 50 for real-time exchange of live audio/video and the collected bio-information between clients),

the one or more of audio information and video information being acquired at a performance at a given location (see figure 2 and column 2 lines 23-34, which recite a microphone 44 and camera 42 for acquiring audio and visual information),

the bio-information being of at least one individual present at the given location and being detected concurrent with the acquiring of the one or more of audio information and video information (see figure 2, figure 4, column 2 lines 23-34, and column 7 lines 1-9, which recite a

biometric sensor array module 50 that detects bio-information used for real-time conference that concurrently transmits audio/video information as well as bio-information gathered from multi-sensor array 50);

the statistically processed bio-information being generated by performing statistical processing of the detected bio-information over predetermined time intervals corresponding to respective pluralities of the first data packets (see column 3 lines 48-67 and column 4 lines 1-19, which recite statistical processing of the bio-information by collecting and interpreting the mix-mode signals of the bio sensors 50 into findings, flags, warnings, or other indications provided as feedback);

reproducing the one or more of audio information and video information for delivery to a user (see figure 2 and column 2 lines 23-34, which recites client 20 including network interface 24 for receiving a data stream that are decomposed and distributed to the display 32 and audio device 46); and

providing, to the user, sense stimulation based on the bio-information concurrent with the delivery of the one or more of the audio information and video information (see figure 2 and column 2 lines 23-34, which recites client 20 including network interface 24 for receiving a data stream that are decomposed and distributed to mechanical device 48 for providing sense stimulation to a user).

Fernandez et al. disclose all the subject of the claimed invention with the exception wherein the statistical processing of the bio-information is specifically performed over predetermined time intervals corresponding to respective pluralities of the first data packets of the one or more of audio information and video information, wherein the packetizing of

statistically processed bio-information is specifically packetized into respective pluralities of second data packets corresponding to the respective pluralities of the first data packets.

However, Kumar et al. disclose a system and method for real-time retrieval, assessment, analysis, and transmission of physiological data such as EKG, EMG, EEG, blood pressure, body temperature, and pulse measurements (see column 5 lines 47-61 and column 6 lines 50-56). The real-time streaming of such bio-information is augmented by transmission of audio and video streams that are synchronized with the respective bio-information (see column 7 lines 4-14). Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the system and method for communicating bio-information and respectively synchronized audio and video information as taught by Kumar et al. with the method for transmitting and receiving bio-information with audio and video information as taught by Fernandez et al. The packetized bio-information must be multiplexed and transmitted such that it is temporally adjacent to the audio and video packets to ensure that the bio-information is synchronized with the audio and video information to form a real-time combined data stream. If the bio-information and audio/video information of a corresponding time period are not multiplexed together, then one of the data information would arrive later. As a result, the final stream containing video, audio, and bio-information would be delayed until the late data arrives. In this case, the delay would prevent the real-time streaming of the combined data streams as disclosed by Kumar et al. Thus, the packetized bio-information must be multiplexed together with the audio and video packets to ensure that the bio-information is synchronized with the audio and video information to form a real-time combined data stream as disclosed by Kumar et al. The motivation for using the system and method for transmitting bio-information and

respectively synchronized audio and video information as taught by Kumar et al. with the method for transmitting bio-information with audio and video information as taught by Fernandez et al. is to enhance the communication experienced by users using transmission of audio/video information with respectively synchronized bio-information.

Fernandez et al. and Kumar et al. disclose all the subject of the claimed invention with the exception of specifically partitioning the acquired one or more of audio information and video information into lengths of partitioned data each of which corresponds to a predefined time interval, compressing and packetizing the lengths of partitioned data into a stream of first data packets having empty regions resulting from the compression of lengths of the partitioned data, and multiplexing the stream of first data packets with the second data packets by inserting a respective plurality of second data packets, which corresponds to one of the predetermined time intervals, into one of the empty regions of the stream that is adjacent to a respective plurality of first data packets which corresponds to a same one of the predetermined time intervals.

However, Stanger et al. from the same or similar fields of endeavor disclose a system and method for adding auxiliary data to empty space that results from compressing a data stream for transmission (see column 2 lines 7-37). Specifically, the system and method partitions video and audio data into data packets (see column 5 lines 10-27 and figures 3a-3b), compresses the packets to provide empty regions (see column 5 lines 31-65 and figure 4), and inserts auxiliary data in the empty spaces (see column 7 lines 41-65 and figure 5). Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the system and method for adding auxiliary data to empty space that is the result of compressing a data stream as

taught by Stanger et al. with the method for transmitting and receiving synchronized bio-information with audio and video information as taught by Fernandez et al. and Kumar et al.

As noted above in reference to Kumar et al., the bio-information is synchronized with respective audio and video information to form a real-time data stream. Thus, bio-information must be multiplexed with audio/video information that all correspond to the same time period. If the respective bio-information is not multiplexed with audio/video information that all correspond to the same time period, then one of the data information would arrive later. As a result, the final stream containing video, audio, and bio-information would be delayed until the late data arrives. In this case, the delay would prevent the real-time streaming of the combined data streams as disclosed by Kumar et al. Thus, the packetized bio-information of a time period must be multiplexed in empty regions that correspond to audio and video packets of the same time period to ensure that the bio-information is synchronized with the audio and video information to form a real-time combined data stream as disclosed by Kumar et al. The system and method for adding auxiliary data to empty space in a data stream can be implemented by inserting the synchronized bio-information as taught by Fernandez et al. and Kumar et al. to the empty space that results from compressing the audio and video data using the encoders and multiplexers as taught by Stanger et al. The motivation for using the system and method for adding auxiliary data to empty space that results from compressing a data stream as taught by Stanger et al. with the method for transmitting and receiving synchronized bio-information with audio and video information as taught by Fernandez et al. and Kumar et al. is to improve the efficiency of the system by creating more payload capacity in the existing transmission channels.

For claim 36, Fernandez et al. discloses an information reproducing method wherein the multiplexed data stream is received through a transmission method (see figure 2, which recites a client 20 that uses network interface 24 for receiving the sensed data stream).

For claim 37, Fernandez et al. discloses an information reproducing method wherein the multiplexed data stream is read out from a recording medium (see column 3 lines 1-17, which recite a memory implement on a semiconductor for reading out sensed signals).

For claim 38, Fernandez et al. discloses an information reproducing method wherein the at least one individual includes a speaker, a player, an actor or conductor who serves as a source of the audio information, and/or a performer or a photographed person who is included within the video information (see column 7 lines 1-9, which recite real-time conference that transmits information of the speaker including bio-information gathered from multi-sensor array 50).

For claim 39, Fernandez et al. discloses an information reproducing method wherein the at least one individual includes a listener present at the given location when the audio information is acquired and/or a viewer present at the given location when the video information is acquired (see column 7 lines 1-9, which recite real-time conference that transmits information of the listener including bio-information gathered from multi-sensor array 50).

For claim 40, Fernandez et al. disclose an information reproducing method, comprising:

decomposing a multiplexed data stream into respective pluralities of first data packets of one or more of audio information and video information and into corresponding respective pluralities of second data packets of statistically processed bio-information (see figure 2 and column 2 lines 23-34, which recites client 20 including network interface 24 used to receive data

streams including audio, video, and bio-information that are decomposed and respectively distributed to audio device 46, display 32, and mechanical device 48),

the multiplexed data stream having each respective plurality of second data packets of the statistically processed bio-information (see column 4 lines 8-19 and column 7 lines 1-9, which recite generating digital packets comprising the collected and interpreted bio-information signals collected by biometric sensor array module 50 for real-time exchange of live audio/video and the collected bio-information between clients),

the one or more of audio information and video information being acquired at a performance at a given location (see figure 2 and column 2 lines 23-34, which recite a microphone 44 and camera 42 for acquiring audio and visual information),

the bio-information being of at least one individual present at the given location and being detected concurrent with the acquiring of the one or more of audio information and video information (see figure 2, figure 4, column 2 lines 23-34, and column 7 lines 1-9, which recite a biometric sensor array module 50 that detects bio-information used for real-time conference that concurrently transmits audio/video information as well as bio-information gathered from multi-sensor array 50),

the statistically processed bio-information being generated by performing statistical processing of the detected bio-information over predetermined time intervals corresponding to respective pluralities of the first data packets (see column 3 lines 48-67 and column 4 lines 1-19, which recite statistical processing of the bio-information by collecting and interpreting the mix-mode signals of the bio sensors 50 into findings, flags, warnings, or other indications provided as feedback); and

controlling, based on the bio-information, reproduction of the one or more of audio information and video information (see column 6 lines 22-25, which controlling access to video information based upon facial imaging biometric information).

Fernandez et al. disclose all the subject of the claimed invention with the exception wherein the statistical processing of the bio-information is specifically performed over predetermined time intervals corresponding to respective pluralities of the first data packets of the one or more of audio information and video information, wherein the packetizing of statistically processed bio-information is specifically packetized into respective pluralities of second data packets corresponding to the respective pluralities of the first data packets.

However, Kumar et al. disclose a system and method for real-time retrieval, assessment, analysis, and transmission of physiological data such as EKG, EMG, EEG, blood pressure, body temperature, and pulse measurements (see column 5 lines 47-61 and column 6 lines 50-56). The real-time streaming of such bio-information is augmented by transmission of audio and video streams that are synchronized with the respective bio-information (see column 7 lines 4-14). Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the system and method for communicating bio-information and respectively synchronized audio and video information as taught by Kumar et al. with the method for transmitting and receiving bio-information with audio and video information as taught by Fernandez et al. The packetized bio-information must be multiplexed and transmitted such that it is temporally adjacent to the audio and video packets to ensure that the bio-information is synchronized with the audio and video information to form a real-time combined data stream. If the bio-information and audio/video information of a corresponding time period are not

multiplexed together, then one of the data information would arrive later. As a result, the final stream containing video, audio, and bio-information would be delayed until the late data arrives. In this case, the delay would prevent the real-time streaming of the combined data streams as disclosed by Kumar et al. Thus, the packetized bio-information must be multiplexed together with the audio and video packets to ensure that the bio-information is synchronized with the audio and video information to form a real-time combined data stream as disclosed by Kumar et al. The motivation for using the system and method for transmitting bio-information and respectively synchronized audio and video information as taught by Kumar et al. with the method for transmitting bio-information with audio and video information as taught by Fernandez et al. is to enhance the communication experienced by users using transmission of audio/video information with respectively synchronized bio-information.

Fernandez et al. and Kumar et al. disclose all the subject of the claimed invention with the exception of specifically partitioning the acquired one or more of audio information and video information into lengths of partitioned data each of which corresponds to a predefined time interval, compressing and packetizing the lengths of partitioned data into a stream of first data packets having empty regions resulting from the compression of lengths of the partitioned data, and multiplexing the stream of first data packets with the second data packets by inserting a respective plurality of second data packets, which corresponds to one of the predetermined time intervals, into one of the empty regions of the stream that is adjacent to a respective plurality of first data packets which corresponds to a same one of the predetermined time intervals.

However, Stanger et al. from the same or similar fields of endeavor disclose a system and method for adding auxiliary data to empty space that results from compressing a data stream for

transmission (see column 2 lines 7-37). Specifically, the system and method partitions video and audio data into data packets (see column 5 lines 10-27 and figures 3a-3b), compresses the packets to provide empty regions (see column 5 lines 31-65 and figure 4), and inserts auxiliary data in the empty spaces (see column 7 lines 41-65 and figure 5). Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the system and method for adding auxiliary data to empty space that is the result of compressing a data stream as taught by Stanger et al. with the method for transmitting and receiving synchronized bio-information with audio and video information as taught by Fernandez et al. and Kumar et al.

As noted above in reference to Kumar et al., the bio-information is synchronized with respective audio and video information to form a real-time data stream. Thus, bio-information must be multiplexed with audio/video information that all correspond to the same time period. If the respective bio-information is not multiplexed with audio/video information that all correspond to the same time period, then one of the data information would arrive later. As a result, the final stream containing video, audio, and bio-information would be delayed until the late data arrives. In this case, the delay would prevent the real-time streaming of the combined data streams as disclosed by Kumar et al. Thus, the packetized bio-information of a time period must be multiplexed in empty regions that correspond to audio and video packets of the same time period to ensure that the bio-information is synchronized with the audio and video information to form a real-time combined data stream as disclosed by Kumar et al. The system and method for adding auxiliary data to empty space in a data stream can be implemented by inserting the synchronized bio-information as taught by Fernandez et al. and Kumar et al. to the empty space that results from compressing the audio and video data using the encoders and

multiplexers as taught by Stanger et al. The motivation for using the system and method for adding auxiliary data to empty space that results from compressing a data stream as taught by Stanger et al. with the method for transmitting and receiving synchronized bio-information with audio and video information as taught by Fernandez et al. and Kumar et al. is to improve the efficiency of the system by creating more payload capacity in the existing transmission channels.

For claim 41, Fernandez et al. discloses an information reproducing method wherein the multiplexed data stream is received through a transmission medium (see figure 2, which recites a client 20 that uses network interface 24 for receiving the sensed data stream).

For claim 42, Fernandez et al. discloses an information reproducing method

wherein the multiplexed data stream is read out from a record medium (see column 3 lines 1-17, which recite a memory implement on a semiconductor for reading out sensed signals).

For claim 43, Fernandez et al. discloses an information reproducing method wherein the at least one individual includes a speaker, a player, an actor, or conductor who serves as a source of the audio information, and/or a performer or a photographed person who is included within the video information (see column 7 lines 1-9, which recite real-time conference that transmits information of the speaker including bio-information gathered from multi-sensor array 50).

For claim 44, Fernandez et al. discloses an information reproducing method wherein the at least one individual includes a listener present at the given location place when the audio information is acquired and/or a viewer present at the given location place when the video information is acquired (see column 7 lines 1-9, which recite real-time conference that transmits information of the listener including bio-information gathered from multi-sensor array 50).

For claim 45, Fernandez et al. disclose an information reproducing apparatus, comprising:

means for decomposing a multiplexed data stream into respective pluralities of first data packets of one or more of audio information and video information and into corresponding respective pluralities of second data packets of statistically processed bio-information (see figure 2 and column 2 lines 23-34, which recites client 20 including network interface 24 used to receive data streams including audio, video, and bio-information that are decomposed and respectively distributed to audio device 46, display 32, and mechanical device 48),

the multiplexed data stream having each respective plurality of second data packets of the statistically processed bio-information (see column 4 lines 8-19 and column 7 lines 1-9, which recite generating digital packets comprising the collected and interpreted bio-information signals collected by biometric sensor array module 50 for real-time exchange of live audio/video and the collected bio-information between clients),

the one or more of audio information and video information being acquired at a performance at a given location (see figure 2 and column 2 lines 23-34, which recite a microphone 44 and camera 42 for acquiring audio and visual information),

the bio-information being of at least one individual present at the given location and being detected concurrent with the acquiring of the one or more of audio information and video information (see figure 2, figure 4, column 2 lines 23-34, and column 7 lines 1-9, which recite a biometric sensor array module 50 that detects bio-information used for real-time conference that concurrently transmits audio/video information as well as bio-information gathered from multi-sensor array 50);

the statistically processed bio-information being generated by performing statistical processing of the detected bio-information over predetermined time intervals corresponding to respective pluralities of the first data packets (see column 3 lines 48-67 and column 4 lines 1-19, which recite statistical processing of the bio-information by collecting and interpreting the mix-mode signals of the bio sensors 50 into findings, flags, warnings, or other indications provided as feedback);

means for reproducing the one or more of audio information and video information for delivery to a user (see figure 2 and column 2 lines 23-34, which recites client 20 including network interface 24 for receiving a data stream that are decomposed and distributed to the display 32 and audio device 46); and

means for providing, to the user, sense stimulation based on the bio-information concurrent with the delivery of the one or more of the audio information and video information (see figure 2 and column 2 lines 23-34, which recites client 20 including network interface 24 for receiving a data stream that are decomposed and distributed to mechanical device 48 for providing sense stimulation to a user).

Fernandez et al. disclose all the subject of the claimed invention with the exception wherein the statistical processing of the bio-information is specifically performed over predetermined time intervals corresponding to respective pluralities of the first data packets of the one or more of audio information and video information, wherein the packetizing of statistically processed bio-information is specifically packetized into respective pluralities of second data packets corresponding to the respective pluralities of the first data packets.

However, Kumar et al. disclose a system and method for real-time retrieval, assessment, analysis, and transmission of physiological data such as EKG, EMG, EEG, blood pressure, body temperature, and pulse measurements (see column 5 lines 47-61 and column 6 lines 50-56). The real-time streaming of such bio-information is augmented by transmission of audio and video streams that are synchronized with the respective bio-information (see column 7 lines 4-14). Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the system and method for communicating bio-information and respectively synchronized audio and video information as taught by Kumar et al. with the method for transmitting and receiving bio-information with audio and video information as taught by Fernandez et al. The packetized bio-information must be multiplexed and transmitted such that it is temporally adjacent to the audio and video packets to ensure that the bio-information is synchronized with the audio and video information to form a real-time combined data stream. If the bio-information and audio/video information of a corresponding time period are not multiplexed together, then one of the data information would arrive later. As a result, the final stream containing video, audio, and bio-information would be delayed until the late data arrives. In this case, the delay would prevent the real-time streaming of the combined data streams as disclosed by Kumar et al. Thus, the packetized bio-information must be multiplexed together with the audio and video packets to ensure that the bio-information is synchronized with the audio and video information to form a real-time combined data stream as disclosed by Kumar et al. The motivation for using the system and method for transmitting bio-information and respectively synchronized audio and video information as taught by Kumar et al. with the method for transmitting bio-information with audio and video information as taught by

Fernandez et al. is to enhance the communication experienced by users using transmission of audio/video information with respectively synchronized bio-information.

Fernandez et al. and Kumar et al. disclose all the subject of the claimed invention with the exception of specifically partitioning the acquired one or more of audio information and video information into lengths of partitioned data each of which corresponds to a predefined time interval, compressing and packetizing the lengths of partitioned data into a stream of first data packets having empty regions resulting from the compression of lengths of the partitioned data, and multiplexing the stream of first data packets with the second data packets by inserting a respective plurality of second data packets, which corresponds to one of the predetermined time intervals, into one of the empty regions of the stream that is adjacent to a respective plurality of first data packets which corresponds to a same one of the predetermined time intervals.

However, Stanger et al. from the same or similar fields of endeavor disclose a system and method for adding auxiliary data to empty space that results from compressing a data stream for transmission (see column 2 lines 7-37). Specifically, the system and method partitions video and audio data into data packets (see column 5 lines 10-27 and figures 3a-3b), compresses the packets to provide empty regions (see column 5 lines 31-65 and figure 4), and inserts auxiliary data in the empty spaces (see column 7 lines 41-65 and figure 5). Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the system and method for adding auxiliary data to empty space that is the result of compressing a data stream as taught by Stanger et al. with the method for transmitting and receiving synchronized bio-information with audio and video information as taught by Fernandez et al. and Kumar et al.

As noted above in reference to Kumar et al., the bio-information is synchronized with respective audio and video information to form a real-time data stream. Thus, bio-information must be multiplexed with audio/video information that all correspond to the same time period. If the respective bio-information is not multiplexed with audio/video information that all correspond to the same time period, then one of the data information would arrive later. As a result, the final stream containing video, audio, and bio-information would be delayed until the late data arrives. In this case, the delay would prevent the real-time streaming of the combined data streams as disclosed by Kumar et al. Thus, the packetized bio-information of a time period must be multiplexed in empty regions that correspond to audio and video packets of the same time period to ensure that the bio-information is synchronized with the audio and video information to form a real-time combined data stream as disclosed by Kumar et al. The system and method for adding auxiliary data to empty space in a data stream can be implemented by inserting the synchronized bio-information as taught by Fernandez et al. and Kumar et al. to the empty space that results from compressing the audio and video data using the encoders and multiplexers as taught by Stanger et al. The motivation for using the system and method for adding auxiliary data to empty space that results from compressing a data stream as taught by Stanger et al. with the method for transmitting and receiving synchronized bio-information with audio and video information as taught by Fernandez et al. and Kumar et al. is to improve the efficiency of the system by creating more payload capacity in the existing transmission channels.

For claim 46, Fernandez et al. discloses an information reproducing apparatus further comprising: means for receiving the multiplexed data stream through a transmission medium

(see figure 2, which recites a client 20 that uses network interface 24 for receiving the sensed data stream).

For claim 47, Fernandez et al. discloses an information reproducing apparatus further comprising: means for reading out the multiplexed data stream from a recording medium (see column 3 lines 1-17, which recite a memory implement on a semiconductor for reading out sensed signals).

For claim 48, Fernandez et al. discloses an information reproducing apparatus wherein the at least one individual includes a speaker, a player, an actor, or a conductor who serves as a source of the audio information, and/or a performer or a photographed person who is included within the video information (see column 7 lines 1-9, which recite real-time conference that transmits information of the speaker including bio-information gathered from multi-sensor array 50).

For claim 49, Fernandez et al. discloses an information reproducing apparatus wherein the at least one individual includes a listener present at the given location when the audio information is acquired and/or a viewer present at the given location when video information is acquired (see column 7 lines 1-9, which recite real-time conference that transmits information of the listener including bio-information gathered from multi-sensor array 50).

For claim 50, Fernandez et al. disclose an information reproducing apparatus, comprising:

means for decomposing a multiplexed data stream into respective pluralities of first data packets of one or more of audio information and video information and into corresponding respective pluralities of second data packets of statistically processed bio-information (see figure

2 and column 2 lines 23-34, which recites client 20 including network interface 24 used to receive data streams including audio, video, and bio-information that are decomposed and respectively distributed to audio device 46, display 32, and mechanical device 48),

the multiplexed data stream having each respective plurality of second data packets of the statistically processed bio-information (see column 4 lines 8-19 and column 7 lines 1-9, which recite generating digital packets comprising the collected and interpreted bio-information signals collected by biometric sensor array module 50 for real-time exchange of live audio/video and the collected bio-information between clients),

the one or more of audio information and video information being acquired at a performance at a given location (see figure 2 and column 2 lines 23-34, which recite a microphone 44 and camera 42 for acquiring audio and visual information),

the bio-information being of at least one individual present at the given location and being detected concurrent with the acquiring of the one or more of audio information and video information (see figure 2, figure 4, column 2 lines 23-34, and column 7 lines 1-9, which recite a biometric sensor array module 50 that detects bio-information used for real-time conference that concurrently transmits audio/video information as well as bio-information gathered from multi-sensor array 50),

the statistically processed bio-information being generated by performing statistical processing of the detected bio-information over predetermined time intervals corresponding to respective pluralities of the first data packets (see column 3 lines 48-67 and column 4 lines 1-19, which recite statistical processing of the bio-information by collecting and interpreting the mix-

mode signals of the bio sensors 50 into findings, flags, warnings, or other indications provided as feedback); and

means for controlling, based on the bio-information, reproduction of the one or more of audio information and video information (see column 6 lines 22-25, which controlling access to video information based upon facial imaging biometric information).

Fernandez et al. disclose all the subject of the claimed invention with the exception wherein the statistical processing of the bio-information is specifically performed over predetermined time intervals corresponding to respective pluralities of the first data packets of the one or more of audio information and video information, wherein the packetizing of statistically processed bio-information is specifically packetized into respective pluralities of second data packets corresponding to the respective pluralities of the first data packets.

However, Kumar et al. disclose a system and method for real-time retrieval, assessment, analysis, and transmission of physiological data such as EKG, EMG, EEG, blood pressure, body temperature, and pulse measurements (see column 5 lines 47-61 and column 6 lines 50-56). The real-time streaming of such bio-information is augmented by transmission of audio and video streams that are synchronized with the respective bio-information (see column 7 lines 4-14). Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the system and method for communicating bio-information and respectively synchronized audio and video information as taught by Kumar et al. with the method for transmitting and receiving bio-information with audio and video information as taught by Fernandez et al. The packetized bio-information must be multiplexed and transmitted such that it is temporally adjacent to the audio and video packets to ensure that the bio-information is

synchronized with the audio and video information to form a real-time combined data stream. If the bio-information and audio/video information of a corresponding time period are not multiplexed together, then one of the data information would arrive later. As a result, the final stream containing video, audio, and bio-information would be delayed until the late data arrives. In this case, the delay would prevent the real-time streaming of the combined data streams as disclosed by Kumar et al. Thus, the packetized bio-information must be multiplexed together with the audio and video packets to ensure that the bio-information is synchronized with the audio and video information to form a real-time combined data stream as disclosed by Kumar et al. The motivation for using the system and method for transmitting bio-information and respectively synchronized audio and video information as taught by Kumar et al. with the method for transmitting bio-information with audio and video information as taught by Fernandez et al. is to enhance the communication experienced by users using transmission of audio/video information with respectively synchronized bio-information.

Fernandez et al. and Kumar et al. disclose all the subject of the claimed invention with the exception of specifically partitioning the acquired one or more of audio information and video information into lengths of partitioned data each of which corresponds to a predefined time interval, compressing and packetizing the lengths of partitioned data into a stream of first data packets having empty regions resulting from the compression of lengths of the partitioned data, and multiplexing the stream of first data packets with the second data packets by inserting a respective plurality of second data packets, which corresponds to one of the predetermined time intervals, into one of the empty regions of the stream that is adjacent to a respective plurality of first data packets which corresponds to a same one of the predetermined time intervals.

However, Stanger et al. from the same or similar fields of endeavor disclose a system and method for adding auxiliary data to empty space that results from compressing a data stream for transmission (see column 2 lines 7-37). Specifically, the system and method partitions video and audio data into data packets (see column 5 lines 10-27 and figures 3a-3b), compresses the packets to provide empty regions (see column 5 lines 31-65 and figure 4), and inserts auxiliary data in the empty spaces (see column 7 lines 41-65 and figure 5). Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the system and method for adding auxiliary data to empty space that is the result of compressing a data stream as taught by Stanger et al. with the method for transmitting and receiving synchronized bio-information with audio and video information as taught by Fernandez et al. and Kumar et al.

As noted above in reference to Kumar et al., the bio-information is synchronized with respective audio and video information to form a real-time data stream. Thus, bio-information must be multiplexed with audio/video information that all correspond to the same time period. If the respective bio-information is not multiplexed with audio/video information that all correspond to the same time period, then one of the data information would arrive later. As a result, the final stream containing video, audio, and bio-information would be delayed until the late data arrives. In this case, the delay would prevent the real-time streaming of the combined data streams as disclosed by Kumar et al. Thus, the packetized bio-information of a time period must be multiplexed in empty regions that correspond to audio and video packets of the same time period to ensure that the bio-information is synchronized with the audio and video information to form a real-time combined data stream as disclosed by Kumar et al. The system and method for adding auxiliary data to empty space in a data stream can be implemented by

inserting the synchronized bio-information as taught by Fernandez et al. and Kumar et al. to the empty space that results from compressing the audio and video data using the encoders and multiplexers as taught by Stanger et al. The motivation for using the system and method for adding auxiliary data to empty space that results from compressing a data stream as taught by Stanger et al. with the method for transmitting and receiving synchronized bio-information with audio and video information as taught by Fernandez et al. and Kumar et al. is to improve the efficiency of the system by creating more payload capacity in the existing transmission channels.

For claim 51, Fernandez et al. discloses an information reproducing apparatus further comprising: means for receiving the multiplexed data stream through a transmission medium (see figure 2, which recites a client 20 that uses network interface 24 for receiving the sensed data stream).

For claim 52, Fernandez et al. discloses an information reproducing apparatus further comprising: means for reading out the multiplexed data stream from a recording medium (see column 3 lines 1-17, which recite a memory implement on a semiconductor for reading out sensed signals).

For claim 53, Fernandez et al. discloses an information reproducing apparatus wherein the at least one individual includes a speaker, a player, an actor, or a conductor who serves as a source of the audio information, and/or a performer or a photographed person who is included within the video information (see column 7 lines 1-9, which recite real-time conference that transmits information of the speaker including bio-information gathered from multi-sensor array 50).

For claim 54, Fernandez et al. discloses an information reproducing apparatus wherein the at least one individual includes a listener present at the given location when the audio information is acquired and/or a viewer present at the given location when the video information is acquired (see column 7 lines 1-9, which recite real-time conference that transmits information of the listener including bio-information gathered from multi-sensor array 50).

For claim 55, Fernandez et al. disclose a recording medium having recorded (see column 2 lines 4-14, which recite storing audio, video, and bio-information for transmission) therein:

a multiplexed data stream comprised of respective pluralities of first data packets of one or more of audio information and video information and corresponding respective pluralities of second data packets of statistically processed bio-information (see figure 2 and column 2 lines 23-34, which recites client 20 including network interface 24 used to receive data streams including audio, video, and bio-information that are decomposed and respectively distributed to audio device 46, display 32, and mechanical device 48),

the multiplexed data stream having each respective plurality of second data packets of the statistically processed bio-information (see column 4 lines 8-19 and column 7 lines 1-9, which recite generating digital packets comprising the collected and interpreted bio-information signals collected by biometric sensor array module 50 for real-time exchange of live audio/video and the collected bio-information between clients),

the one or more of audio information and video information being acquired at a performance at a given location (see figure 2 and column 2 lines 23-34, which recite a microphone 44 and camera 42 for acquiring audio and visual information),

the bio-information being of at least one individual present at the given location and being detected concurrent with the acquiring of the one or more of audio information and video information (see figure 2, figure 4, column 2 lines 23-34, and column 7 lines 1-9, which recite a biometric sensor array module 50 that detects bio-information used for real-time conference that concurrently transmits audio/video information as well as bio-information gathered from multi-sensor array 50),

the statistically processed bio-information being generated by performing statistical processing of the detected bio-information over predetermined time intervals corresponding to respective pluralities of the first data packets (see column 3 lines 48-67 and column 4 lines 1-19, which recite statistical processing of the bio-information by collecting and interpreting the mix-mode signals of the bio sensors 50 into findings, flags, warnings, or other indications provided as feedback).

Fernandez et al. disclose all the subject of the claimed invention with the exception wherein the statistical processing of the bio-information is specifically performed over predetermined time intervals corresponding to respective pluralities of the first data packets of the one or more of audio information and video information, wherein the packetizing of statistically processed bio-information is specifically packetized into respective pluralities of second data packets corresponding to the respective pluralities of the first data packets.

However, Kumar et al. disclose a system and method for real-time retrieval, assessment, analysis, and transmission of physiological data such as EKG, EMG, EEG, blood pressure, body temperature, and pulse measurements (see column 5 lines 47-61 and column 6 lines 50-56). The real-time streaming of such bio-information is augmented by transmission of audio and video

streams that are synchronized with the respective bio-information (see column 7 lines 4-14). Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the system and method for communicating bio-information and respectively synchronized audio and video information as taught by Kumar et al. with the method for transmitting and receiving bio-information with audio and video information as taught by Fernandez et al. The packetized bio-information must be multiplexed and transmitted such that it is temporally adjacent to the audio and video packets to ensure that the bio-information is synchronized with the audio and video information to form a real-time combined data stream. If the bio-information and audio/video information of a corresponding time period are not multiplexed together, then one of the data information would arrive later. As a result, the final stream containing video, audio, and bio-information would be delayed until the late data arrives. In this case, the delay would prevent the real-time streaming of the combined data streams as disclosed by Kumar et al. Thus, the packetized bio-information must be multiplexed together with the audio and video packets to ensure that the bio-information is synchronized with the audio and video information to form a real-time combined data stream as disclosed by Kumar et al. The motivation for using the system and method for transmitting bio-information and respectively synchronized audio and video information as taught by Kumar et al. with the method for transmitting bio-information with audio and video information as taught by Fernandez et al. is to enhance the communication experienced by users using transmission of audio/video information with respectively synchronized bio-information.

Fernandez et al. and Kumar et al. disclose all the subject of the claimed invention with the exception of specifically partitioning the acquired one or more of audio information and

video information into lengths of partitioned data each of which corresponds to a predefined time interval, compressing and packetizing the lengths of partitioned data into a stream of first data packets having empty regions resulting from the compression of lengths of the partitioned data, and multiplexing the stream of first data packets with the second data packets by inserting a respective plurality of second data packets, which corresponds to one of the predetermined time intervals, into one of the empty regions of the stream that is adjacent to a respective plurality of first data packets which corresponds to a same one of the predetermined time intervals.

However, Stanger et al. from the same or similar fields of endeavor disclose a system and method for adding auxiliary data to empty space that results from compressing a data stream for transmission (see column 2 lines 7-37). Specifically, the system and method partitions video and audio data into data packets (see column 5 lines 10-27 and figures 3a-3b), compresses the packets to provide empty regions (see column 5 lines 31-65 and figure 4), and inserts auxiliary data in the empty spaces (see column 7 lines 41-65 and figure 5). Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the system and method for adding auxiliary data to empty space that is the result of compressing a data stream as taught by Stanger et al. with the method for transmitting and receiving synchronized bio-information with audio and video information as taught by Fernandez et al. and Kumar et al.

As noted above in reference to Kumar et al., the bio-information is synchronized with respective audio and video information to form a real-time data stream. Thus, bio-information must be multiplexed with audio/video information that all correspond to the same time period. If the respective bio-information is not multiplexed with audio/video information that all correspond to the same time period, then one of the data information would arrive later. As a

result, the final stream containing video, audio, and bio-information would be delayed until the late data arrives. In this case, the delay would prevent the real-time streaming of the combined data streams as disclosed by Kumar et al. Thus, the packetized bio-information of a time period must be multiplexed in empty regions that correspond to audio and video packets of the same time period to ensure that the bio-information is synchronized with the audio and video information to form a real-time combined data stream as disclosed by Kumar et al. The system and method for adding auxiliary data to empty space in a data stream can be implemented by inserting the synchronized bio-information as taught by Fernandez et al. and Kumar et al. to the empty space that results from compressing the audio and video data using the encoders and multiplexers as taught by Stanger et al. The motivation for using the system and method for adding auxiliary data to empty space that results from compressing a data stream as taught by Stanger et al. with the method for transmitting and receiving synchronized bio-information with audio and video information as taught by Fernandez et al. and Kumar et al. is to improve the efficiency of the system by creating more payload capacity in the existing transmission channels.

For claim 56, Fernandez et al. discloses a recording medium having recorded wherein least one individual includes a speaker, a player, an actor, or a conductor who serves as a source of the audio information, and/or a performer or a photographed person who is included within the video information (see column 7 lines 1-9, which recite real-time conference that transmits information of the speaker including bio-information gathered from multi-sensor array 50).

For claim 57, Fernandez et al. discloses a recording medium having recorded wherein the at least one individual includes a listener present at the given location when the audio information is acquired and/or a viewer present at the given location place when the video

information is acquired (see column 7 lines 1-9, which recite real-time conference that transmits information of the listener including bio-information gathered from multi-sensor array 50).

For claim 59, Fernandez et al. discloses a recording medium having recorded wherein the bio-information is selected from the group consisting at least one of body motion, myoelectricity, body surface temperature, skin sweating, skin resistance, pulse, breath, micro-vibration, cardioelectricity, heartbeat, and blood pressure (see column 4 lines 20-29, which recite detecting temperature, pressure, physiological vital information such as pulse and blood pressure using the multi-sensor module 50).

Response to Arguments

10. It is noted with appreciation that the Applicants have carefully considered the prior art rejections of the pending claims. Applicant's arguments with respect to claims 1-3, 7-11, 15-19, 23-28, 32-57 and 59 have been considered but are moot in view of the new ground(s) of rejection. Although new grounds of rejection have been introduced, the Examiner's response to the Applicants' arguments regarding the newly added limitations is provided for the Applicants' consideration. As noted above in reference to Kumar et al., the bio-information is synchronized with respective audio and video information to form a real-time data stream. Thus, bio-information and audio/video information that all correspond to the same time period must be multiplexed together. If the respective bio-information is not multiplexed with audio/video information that all correspond to the same time period, then one of the bio-information, audio, or video data that correspond to the same time period will arrive late. As a result, the combined

stream containing video, audio, and bio-information would be delayed until the late data arrives. In this case, the delay would prevent the real-time streaming of the combined data streams as disclosed by Kumar et al. Thus, the packetized bio-information of a time period must be multiplexed in empty regions that correspond to audio and video packets of the same time period to ensure that the bio-information is synchronized with the audio and video information to form a real-time combined data stream as disclosed by Kumar et al.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BEN H. LIU whose telephone number is (571)270-3118. The examiner can normally be reached on 9:00AM to 6:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on (571)272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ricky Ngo/
Supervisory Patent Examiner, Art Unit 2464

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